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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,896	08/20/2003	Nobuo Aoi	740819-1033	4663
22204	7590	11/04/2004		
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			EXAMINER OLSEN, ALLAN W	
			ART UNIT 1763	PAPER NUMBER

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/643,896

Applicant(s)

AOI, NOBUO

Examiner

Allan Olsen

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 11-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/492,841.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/20/2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of Group I, claims 1-10, in the reply filed August 16, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 11-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse the reply filed August 16, 2004.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, because the claims are broader in scope than the enabling disclosure. Specifically, claim 1 recites "a fluorine gas" which, given its broadest reasonable interpretation is taken to mean a fluorine containing gas. The specification, while being enabling for fluorine containing gases such as F<sub>2</sub>, HF, NF<sub>3</sub>, does not reasonably provide enablement for etching with a host compounds that are among the vast number of fluorine containing compounds. As such, the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope

with these claims. Similarly, claims 3 recites: "a hydrogen gas, a nitrogen gas and a fluorine gas" which is interpreted as meaning - a hydrogen containing gas, a nitrogen containing gas and a fluorine containing gas. Claim 5 recites "a hydrogen gas" which is interpreted as meaning - a hydrogen containing gas. Claim 7 recites "a nitrogen gas" which is interpreted as meaning - a nitrogen containing gas. Claim 9 recites "a nitrogen gas" which is interpreted as meaning - a nitrogen containing gas.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claims 1, 3, 5, 7 and 9 include limitations that recite the phrase "main constituents". The phrase "main constituent" renders the claim indefinite. Neither the specification nor the claim defined this phrase. Therefore, one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

**Claims 3-6, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Publication 10-268526 (hereinafter, Sato).**

Sato teaches a method to anisotropically etch a silicon-containing organic film. Sato teaches using a plasma source gas comprising a fluorine-containing compound such as  $\text{NF}_3$ ,  $\text{F}_2$  or  $\text{CF}_4$ . Additionally Shinohara teaches providing  $\text{N}_2$  and Ar to the etchant mixture. See, for example, machine translation paragraphs 0050 and 0059.

**Claims 3-6, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent 6,207,583 issued to Dunne et al. (hereinafter, Dunne).**

Dunne teaches a method to anisotropically etch a silicon-containing organic film. Sato teaches using a plasma source gas may comprising a fluorine containing compound such as  $\text{NF}_3$ ,  $\text{SF}_6$  or  $\text{CF}_4$  in combination with  $\text{N}_2$ ,  $\text{H}_2$  and Ar. See: column 3, lines 30-38, 58, column 4, lines 2, 9-12; column 4, line 62 – column 5, line 10; column 6, line 48 – column 7, line 12; column 7, line 62 – column 8, line 12; column 13.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunne in view of U.S. Patent 6,350,670 issued to Andideh et al. (hereinafter, Andideh).**

The teaching of Dunne, as noted above, is herein relied upon.

Dunne does not teach etching with  $\text{NH}_3$ .

Andideh teaches etching an organic/inorganic composite layer that is similar to the layer etched by Dunne. Andideh teaches etching with a mixture of  $\text{H}_2$  and  $\text{N}_2$  (forming gas). Andideh teaches that  $\text{NH}_3$  may be used as an alternative to the using the forming gas mixture.

It would have been obvious to one skilled in the art to replace the forming gas mixture of Dunne with  $\text{NH}_3$  because Andideh teaches that  $\text{NH}_3$  and forming gas are functional equivalents with regard to the etching of an organic/inorganic composite.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M-F 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Mills can be reached on 571-272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Allan Olsen". The signature is stylized with a large, looped "O" and a long, sweeping underline.

Allan Olsen  
Primary Examiner  
Art Unit 1763